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ABSTRACT

The predictive validity of the National Teacher Examinations (NTE) tests of communications skills (CS) and general knowledge (GK) as entrance requirements for teacher education programs and for later performance on the state certification examination were studied. Data were collected for 1,143 graduates of teacher education programs in North Carolina. Data collected included: (1) Scholastic Aptitude Test verbal and mathematics scores; (2) grade point average (GPA) at two points; (3) NTE CS scores; (4) NTE GK scores; and (5) NTE test of professional knowledge (PK) scores. The CS and GK scores were not found to be strongly enough related to performance in the teacher education programs, as measured by GPA, to merit their use as requirements for admission. The tests were useful in predicting performance on the NTE PK tests, the state certification examinations. Cross-validation of regression models from prior studies showed these relationships to be stable. Implications for educational policy are discussed. Three tables present study data. (Author/SLD)

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The Predictive Validity of the NTE for Performance in Teacher Education Programs and on the Certification Examination

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The Predictive Validity of the NTE for Performance in Teacher Education Programs and on the Certification Examination

Since 1983, North Carolina has used the National Teacher Examinations (NTE) Communication Skills (CS) and General Knowledge (GK) tests for screening candidates for admission to teacher education programs, and the NTE test of Professional Knowledge (PK) for licensure of teachers. Candidates for admission to teacher education programs must achieve qualifying scores on the CS and GK, which most students take in the final term of their sophomore year. After successful completion of the teacher education program, a student must attain a passing score on the PK to be eligible for licensure in the state. This paper describes the methodology and results of a study which investigated the predictive validity of the NTE CS and GK as entrance requirements for teacher education programs and for later performance on the state certification examination.

Relationships among standardized tests and college grades

The tests of the NTE Core Battery (CS, GK and PK) have been found to be highly intercorrelated. Pearson correlations of .80 between the CS and GK were reported by Wakeford (1988) and Ayers (1988), suggesting redundancy between the two tests. Ayers (1988) found a somewhat stronger relationship between the CS and the PK (r=.84), and it has been determined that the CS contributes significantly to the prediction of the PK (Pratt, DeLucia and Williams, 1987; Wakeford, 1988). The NTE GK has also been shown to correlate highly with the PK (r=.73) among teacher education students (Ayers, 1988) and to account for a significant proportion

of the variance in PK scores (Wakeford, 1988).

The American College Test (ACT) and the Scholastic Aptitude Test (SAT) are two nationally standardized tests frequently used for college admission decisions. The relationship between the NTE Core Battery and the ACT is well documented (Ayers, 1988; Dobry, Murphy and Schmidt, 1985; Lovelace and Martin, 1984). In regard to the relationship between the NTE and SAT, Wakeford (1988) has reported high correlations between SAT scores and the PK (r=.59 to .74), the CS (r=.76 to .80), and the GK (r=.67 to .79). Wakeford also found that SAT scores accounted for 57% of the variance in PK scores.

Research has disclosed no strong or consistent relationships between the NTE CS and GK and college grade point average (GPA). Lovelace and Martin (1984) found rather low but statistically significant correlations between GPA and the CS (r=.26), and the GK (r=.42), while Olstad, Beal, Foster and Marrett (1985) found no relationship between GPA and the GK. Ayers (1988) found a moderate correlation between cumulative GPA and the CS (r=.47), but he reported no relationship between cumulative GPA and the GK. Ayers (1988) also reported a significant correlation between GPA in professional education coursework and CS scores (r=.35), but not GK scores. Wakeford (1988) found low but significant correlations between GPA for the first two years of college and the CS (r=.24) and the GK (r=.32).

In studies of the relationship between the NTE PK and GPA, Dobry, Murphy and Schmidt (1985) reported a significant correlation between the two measures (r=.52), whereas Lovelace and Martin (1984) did not. Ayers (1988) found significant correlations between the PK and GPA in general college studies

(r=.49), and between the PK and GPA in education coursework (r=.36). Wakeford (1988) reported similar correlations between two GPA measures and performance on the PK (r=.41 to r=.37), but determined that GPA did not significantly enhance the prediction of PK scores beyond the contribution of SAT scores.

The research described in this paper was motivated by a desire to confirm previous findings which indicated that performance on the NTE CS and GK, when used for teacher education program admissions, was not related to performance in teacher education coursework. Specifically, we asked, what is the predictive validity of the CS and GK as admissions requirements to teacher education programs? This question was examined using student grade point average as well as scores on the PK as the criteria for student performance. SAT scores and grade point average for the first two years of a student's college career are two measures of academic achievement which are usually readily available to teacher education program admissions personnel. The study also asked whether the CS and GK enhanced the prediction of student performance beyond these alternative predictors of scholastic achievement.

Method

Subjects and Selection

The data used in this research were drawn from The University of North Carolina (UNC) system Student Data File (SDF) and the Candidate for Professional Certification (CPC) data files. Subjects were enrolled at the fifteen campuses of The University system which offer teacher education programs. Those subjects for which complete data were not available were deleted, resulting in

a database of 1143 students.

All UNC system teacher education students who graduated during the 1986-1987 or 1987-1988 academic years were potential subjects. Each student must have enrolled as a freshman in a program leading to a baccalaureate degree at the institution from which he or she was graduated, and must have completed all coursework at that same institution. In addition, each student must have been formally admitted to a teacher education program, and have completed successfully the required course of study for the program and baccalaureate degree.

Description of Variables

SATV: Scholastic Aptitude Test, verbal subscore;

SATM: Scholastic Aptitude Test, mathematical subscore;

GPA1: student's grade point average recorded on the SDF within a range of credit hours, the mid-point of which is the required credit hours for junior status;

CS: the NTE test of Communication Skills;

GK: the NTE test of General Knowledge;

GPA2: student's grade point average earned in coursework exclusive of GPA1;

PK: the NTE test of Professional Knowledge.

Results

Preliminary analyses, including descriptive statistics and Pearson correlations among the predictor and criterion variables, revealed the expected pattern of high intercorrelations among the tests of the NTE Core Battery and SAT subtests. Table 1 shows that the correlation between GPA1 and GPA2 is also high (r=.68).

Table 1

Intercorrelation Matrix of Variables

	SATV	SATM	GPA1	CS	GK	GPA2
SATV	1.000					
SATM	0.629	1.000				
GPA1	0.338	0.306	1.000			
CS	0.772	0.713	0.363	1.000		
GK	0.757	0.578	0.388	0.755	1.000	
GPA2	0.266	0.215	0.679	0.289	0.351	1.000
PK	0.711	0.487	0.393	0.693	0.737	0.385

Note. All correlations are significant beyond p = .0001.
N = 1143.

In order to cross-validate the prediction models formulated by Wakeford (1988), the regression equations developed on her sample of 1984-85 and 1985-86 UNC system teacher education graduates for predicting both GPA2 and NTE PK score were applied to the present sample. Wakeford reported an R^2 of .48 for her model for predicting education student grade point average in the second two years of college coursework. When that model for predicting GPA2 was applied to the present sample, the correlation between predicted and observed GPA2 was found to be r=.68, yielding an R^2 of .47, an exceptionally small amount of shrinkage. The correlation between observed PK scores and those scores predicted from the Wakeford formula was found to be r=.79. Wakeford reported an original R^2 of .67. The square of the present multiple correlation coefficient is R^2 = .62, and the difference between the two R^2s represents only a small amount of shrinkage.

Next, a series of hierarchical multiple regressions was computed, with blockwise inclusion of variables entered in the usual order in which they would be measured for each student. Table 2 summarizes the adjusted R^2 and F values for the prediction models for GPA2. It can be seen that SATV and SATM scores were not found to be useful in predicting student performance (R^2 = .07) although the model was statistically significant ($F(2,1140) = 45.83$, $p < .0001$). GPA1 was included next, and the adjusted R^2 increased to .46 ($F(1,1139) = 824.74$, $p < .0001$), and was not meaningfully enhanced by the later inclusion of CS and GK in the full model, $R^2 = .47$ ($F(2,1137) = 11.23$, $p < .01$). The standard error of the estimated GPA2 values for the full model is 0.29.

Table 2

Adjusted R^2 and F Values for the Incremental Prediction of GPA2

Predictors	R^2	F	df	p
SATV, SATM	0.073	45.83	2, 1140	.0001
GPA1 | SATV, SATM	0.462	824.74	1, 1139	.0001
CS, GK | SATV, SATM, GPA1	0.471	11.23	2, 1137	.0001

When the criterion was PK scores, as shown in Table 3, SAT scores alone accounted for more than 50% of the variance in PK scores ($F(2,1140) = 589.37$, $p < .0001$). The full model, including SATV, SATM, GPA1, and CS and GK scores, yields an adjusted R^2 equal to .62, little better overall than the R^2 for Wakeford's (1988) formula applied to the present data. The standard error of estimated PK scores is 5.83.

Table 3

Adjusted R^2 and F Values for the Incremental Prediction of NTE PK

Predictors	R^2	F	df	p
SATV, SATM	0.508	589.37	2, 1140	.0001
GPA1 | SATV, SATM	0.532	59.76	1, 1139	.0001
CS, GK | SATV, SATM, GPA1	0.622	136.82	2, 1137	.0001

Discussion

The results indicate that GPA2 was best predicted by GPA1, and that the NTE CS and GK did not meaningfully contribute to the prediction of GPA2. GPA2 represents the majority of professional education and academic discipline area coursework taken during the junior and senior years of college. Because qualifying scores on the CS and GK are required for admission to professional education programs, it would be expected that these tests would display a certain amount of criterion-related validity by being highly related to GPA2. This, however, has not been found to be the case in the present study or other studies (Ayers, 1988; Lovelace and Martin, 1984; Olstad et al., 1985; Wakeford, 1988).

The present analyses confirm previous findings that the best predictors of success on the test of Professional Knowledge were scores on the CS and GK (Pratt, DeLucia, and Williams, 1987; Wakeford, 1988). The CS and GK are valuable in that they allow accurate prediction of performance on the certification examination. However, these tests are not strongly enough related to actual student performance in teacher education programs as measured by GPA2 to merit their use as requirements for admission.

The high correlations between SAT scores and the NTE provide support for the concurrent validity of the CS and the GK. However, another question arises: could these high correlations mean that the tests are all actually measuring the same thing, for instance, test-taking ability? It seems that the high intercorrelations among ETS instruments have been generally neglected by researchers and policy makers. These results have policy implications as well. Findings such as those reported here which do not support the use of the NTE CS and GK as entrance criteria for teacher education programs require a review of current state policy.

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